



# FORTIS SG200 SOLAR ENERGISER USER MANUAL



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# Introduction

Thank you for buying Suregreen's FORTIS electric fence energiser. This energiser has built-in lightning protection devices to reduce the incidence of lightning damage, and built-in RFI (Radio Frequency Interference) Suppressed Circuitry.

You must read this manual carefully before using this product. Please retain this manual for your records.

If you have any questions regarding this product, please get in touch:

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**This manual is for FORTIS SG200 solar electric fence energiser.**

## 1. Important safety introduction

### Symbol meaning:



Separate supply unit



Connection to mains-operated equipment prohibited, including battery chargers



Read user manual before use

**IP X4**

Weather resistant/resistant to splashing water



High voltage



Cannot recycle directly



Satisfies CE requirements



Satisfies Rohs requirements



**WARNING:** Please ensure you read the following installation requirements and regulations in their entirety.

- Unless the high/low voltage output is disarmed, **do not touch live electric fence.**
- Do not let this energiser get significantly wet.

- This product must be placed or installed in cool and breezy place. It's strongly recommended that you avoid placing it in direct sunlight.
- This fence is used to prevent the migration of wildlife and livestock. It is not designed for any other use.
- Make sure the guard is earthed.
- Make sure that the fence wire does not touch grass or wood. It is necessary to occasionally cut the grass around the fence wire, but be careful of the wire when doing so.
- You must ensure that you check the batteries at regular intervals. Please replace the batteries when the BAT light (battery caution light) is illuminated. Take out the batteries when this fence is not in use, otherwise this can cause leakage.
- Do not climb over, through or under a multi-wire electric fence. Use a gate or a specially designed crossing point.
- Avoid electric fence constructions that are likely to lead to the entanglement of animals or persons.
- Electric animal fences must be installed and operated so that they cause no electrical hazard to persons, animals or their surroundings.
- In all areas where there is a likely presence of unsupervised children who will be unaware of the dangers of electric fencing, you must ensure that a suitably rated current-limiting device (having a resistance of not less than 500 ohms) is connected between the energiser and the electric fence in this area.
- This appliance is not intended for use by young children. Please supervise young children around the electric fence and energiser at all times to ensure they do not play with the appliance.
- Do not place combustible materials near the fence or energiser connections. In times of extreme fire risk, disconnect the energiser immediately.
- Do not tamper with, dismantle or make any changes to the energiser. Do not touch the high voltage part, otherwise you may get an electric shock.
- An electric animal fence must not be supplied from two separate energisers or from independent fence circuits of the same energiser.
- For any two separate electric fences, each supplied from a separate energiser which is independently timed, the distance between the wires of the two electric animal fences must be at least 2.5m. If this gap is to be closed, this must be using a non-conductive material or an isolated metal barrier.
- Barbed wire or razor wire must not be electrified by an energiser.
- A non-electrified fence incorporating barbed wire or razor wire may be used to support one or more off-set electrified wires of an electric animal fence. The supporting devices for the electrified wires must ensure that these wires are positioned at a minimum distance of 150mm from the vertical plane of the non-electrified wires. The barbed wire and razor wire must be earthed at regular intervals.
- Where an electric animal fence crosses a public pathway, a non-electrified gate must be incorporated in the electric fence at that point, or a crossing point or safe stiles must be provided. At any such crossing, the adjacent electrified wires must carry warning signs.
- In areas of public access, you must use an electric fence warning sign every 10m (33ft) to identify the electrified wires.
- Wherever possible, avoid crossing with overhead power lines. If such a crossing cannot be avoided, it

should be made underneath the power line and as near as possible to right angles.

- If connecting leads and electric fence wires are installed near an overhead power line, the clearances should be not less than those shown below:

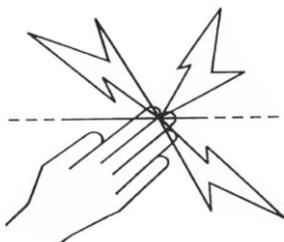
Power Line Voltage V	Clearance M
≤1000	3
> 1000 ≤33000	4
> 33000	8

- If connecting leads and electric fence wires are installed near an overhead power line, their height above the ground should not exceed 3m.

This height applies either side of the orthogonal projection of the outermost conductors of the power line on the ground surface, for a distance of:

- 2m for power lines operating at a nominal voltage not exceeding 1000V;
- 15m for power lines operating at a nominal voltage exceeding 1000V.

- Electric animal fences intended for deterring birds, containing household pets or training animals such as cows need to only be supplied from low output energisers to obtain a satisfactory and safe performance.
- In electric animal fences intended for deterring birds from roosting on buildings, you must not connect any electric fence wire to the energiser earth electrode. A warning sign must be fitted to every point where persons may gain access to the conductors.
- Fence wiring should be installed well away from any telephone or telegraph line or radio aerial.
- The size of any warning signs must be at least 100mm x 200mm.
- The background colour of both sides of the warning sign must be yellow. The text must be black and must read:
  - something similar to “CAUTION: Electric Fence” and/or,
  - the symbol shown:



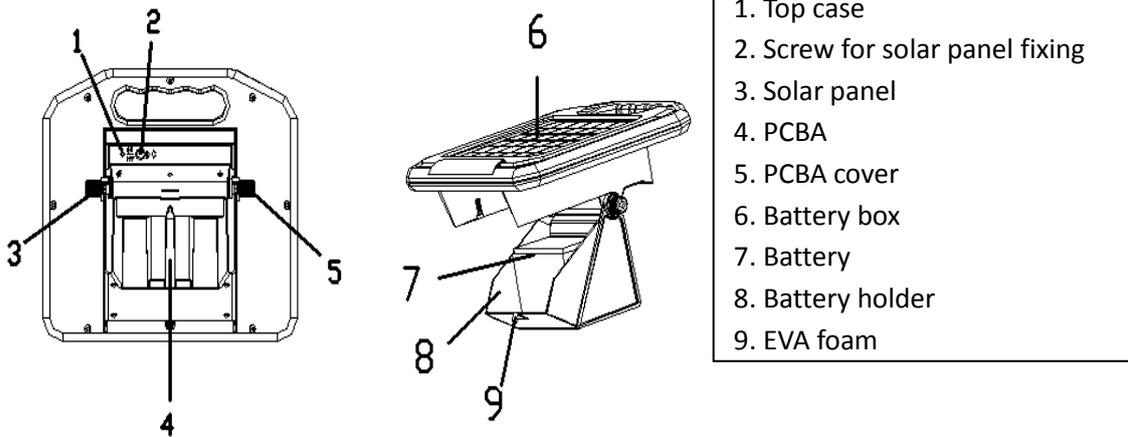
- The inscription must be indelible, inscribed on both sides of the warning sign and have a height of at least 25mm.
- Ensure that all mains-operated ancillary equipment connected to the electric animal fence circuit provides a degree of isolation between the fence circuit and the supply mains equivalent to that provided by the energiser.
- Weather protection must be provided for the ancillary equipment, unless this equipment is certified by

the manufacturer as being suitable for use outdoors, and is of a type with a minimum degree of protection IPX4.

- This energiser complies with international safety regulations and is manufactured to international standards. Suregreen reserves the right to make changes without notice to any product specification to improve reliability, function or design.

## 2. Specification

FORTIS SG200 solar-powered electric fence energizer components:



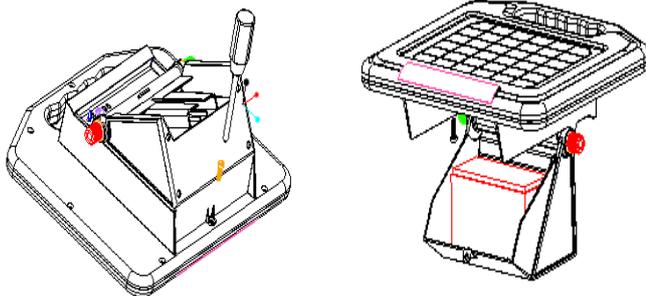
1. Top case
2. Screw for solar panel fixing
3. Solar panel
4. PCBA
5. PCBA cover
6. Battery box
7. Battery
8. Battery holder
9. EVA foam

<b>Power Source</b>	12V, 7.2AH rechargeable lead-acid battery
<b>Maximum Output Voltage</b>	Up to 8.5 KV
<b>Voltage under 500ohm</b>	Up to 2.5KV
<b>Energy</b>	0.15 J
<b>Stored Energy</b>	0.2 J

Unless otherwise stated, values are typical and normal production tolerances of  $\pm 10\%$  should be allowed for.

## 3. Installation guide

### Installing the battery



1. Place the energiser on a flat surface. Open the battery compartment using a screwdriver (see diagram).
2. Insert the battery.
3. Connect the positive (**red**) lead to the positive (+) terminal on the battery.
4. Connect the negative (**black**) lead to the negative (-) terminal on the battery.
5. Close the battery compartment.

**CAUTION:** When connecting the battery, be careful not to short-circuit the supply terminals.

### POSITIONING THE ENERGISER

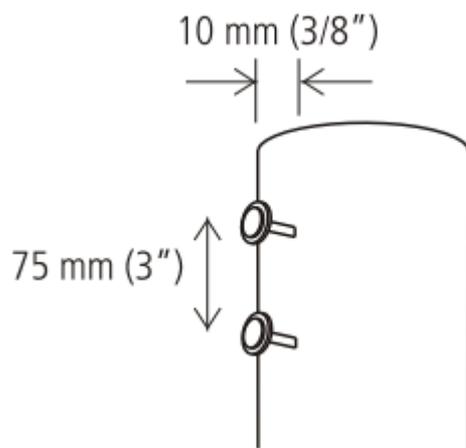
Install the energiser:

- Adjacent to the electric fence
- Preferably in the middle of the electric fence
- Where it will receive the most daily sun throughout the season
- Where a good earth can be obtained
- On firm ground away from flooding and out of reach of animals and children (inside a protective fence, if required)
- The solar panel should face true north in the southern hemisphere and true south in the northern hemisphere.

### MOUNTING THE ENERGISER

The energiser can be mounted directly onto a steel Y-post or T-post using the post-mounting slot. To mount onto a wooden post, use the hardware provided.

- Thread washers onto the nails.
- Space the nails 75 mm (3") apart (or one nail-length).
- Hammer in the nails, allowing them to protrude by 10 mm (3/8").
- Slide the energiser onto the nails with the washers inside the post-mounting slot.



### CONNECTING TO AN ELECTRIC FENCE

1. Push a 1 m (3'3") earth rod fully into firm ground.
2. Connect the **black** lead from the fence earth terminal on the energiser to the earthing system.
3. Connect the **red** lead from the fence output terminal on the energiser to the fence. Make sure that there is good contact.

**CAUTION:** Make sure the connecting leads drop downwards from the energiser to prevent water from collecting at the terminals.

### OPERATION

The pulse indicator light flashes once for each output pulse.  
When switched off, the pulse indicator light stops.

### Battery protection model

The intelligent battery management feature puts the energiser into Battery Protection Mode when the battery charge falls below a safe operating level. When in Battery Protection Mode, the energiser is still on, but it will not deliver a pulse to the electric fence.

The energiser will resume delivering pulses when the solar panel has recharged the battery so that it is above the safe operating level.

Alternatively, the battery can be disconnected and recharged with a battery charger, then returned to the battery compartment and reconnected.

## **BATTERY INFORMATION**

### Battery charging

The solar panel can fully charge a flat battery in three days, provided that the energiser is switched off and there is adequate sunlight. The battery can also be charged using a 14.4V battery charger suitable for charging rechargeable lead-acid batteries. This should have an output voltage of 14.4V and output current not exceeding 1A.

When fully charged, the battery should be able to power the energiser for over three weeks with no sunlight.

### Replacing the battery

If a replacement battery is required, use a 12V, 7.2Ah, rechargeable lead-acid battery.

**Do not** use a non-rechargeable battery.

**Do not** dispose of the battery in a landfill or in a fire.

### In the event of a spill or leakage from a lead-acid battery

Wear acid-resistant clothing, boots, gloves and a face shield. Contain small spills with dry sand, earth and vermiculite. Do not use combustible materials. If possible, carefully neutralise spilled acid with soda ash, sodium bicarbonate, lime, etc. Do not let acid get into the sewerage system.

Neutralised acid must be managed in accordance with approved local, state and federal requirements. Consult your relevant environmental agency.

## **ENERGISER MAINTENANCE**

Clean the solar panel regularly with a soft cloth using glass cleaner or a mild solution of detergent and water. This ensures the solar panel functions efficiently.

When transporting the energiser, protect the solar panel to prevent the glass surface from being damaged.

### Energiser storage

If the energiser is stored for an extended period, the battery may discharge and become damaged. The energiser should be stored inside, next to a window, where sunlight can shine on the energiser each day. If the energiser cannot be stored in a sunny position, it should be kept in a cool place. The battery should be fully charged and disconnected from the energiser.

The battery should be recharged manually every six months using a suitable 14.4 V battery charger.

## 4. Troubleshooting

**Warning:** Do not tamper with, dismantle or reassemble the guard.

Fault	Solution
<p>The Pulse indicator light is flashing, but the electric shock delivered by the fence is weak.</p>	<p>Check that all connections in the fence and earth system are firm and secure. If necessary, clean away any corrosion.</p>
	<p>Check that the earth rod is pushed firmly into firm ground.</p>
	<p>Check for faults along the fence line caused by trees or vegetation. If necessary, remove obstructions and mend the fence.</p>
	<p>Check that the energiser is adequate for the length of the fence. If necessary, reduce the length of the fence or reduce the number of fence wires. Alternatively, divide the fence-line into smaller zones, with each zone powered by a separate energiser.</p>
<p>The Pulse indicator light is not flashing.</p>	<p>Check that the energiser is switched on.</p>
	<p>If there has been insufficient sunlight to charge the battery, the energiser may be in Battery Protection Mode. Charge the battery by placing the energiser in full sunlight with the solar panel facing true north in the southern hemisphere and true south in the northern hemisphere.</p>
	<p>Ensure the battery is connected correctly with the positive (red) lead to the positive (+) terminal on the battery and the negative (black) lead to the negative (-) terminal on the battery.</p>
	<p>Try charging the battery manually using a suitable battery charger.</p>
<p>Replace the battery with a new battery. Before installing a new battery, charge it fully using a suitable battery charger.</p>	
<p>The battery needs frequent replacement.</p>	<p>Check that the solar panel is clean and is not damaged. Make sure the energiser is positioned to receive maximum sunlight. If necessary, remove any objects or vegetation that might be casting a shadow on the energiser.</p>

## 5. Guarantee

We grant a warranty of 2 years as standard which begins from the date of purchase marked on your invoice.

We will only perform warranty services when the faulty unit is returned to us together with a copy of the invoice. The unit should be returned in its original or equivalent packaging, please ensure that you retain this and ensure that the label on the unit is fully legible. New shipping charges will apply.

If these requirements are not fulfilled, we reserve the right to deny warranty services.

Warranty claims are excluded for direct or indirect damage due to:

- 1) Being beyond the warranty date;
- 2) Being without the serial number;
- 3) Transport damage;
- 4) Improper use, operation and refitting;
- 5) Non-observance of the relevant safety instructions, or operation of the energiser in an environment which is different to what is described or recommended within this manual;
- 6) Installation and operation of the energiser outside of the relevant international standards;
- 7) Influence of foreign objects and force majeure (lightning strike, overvoltage, severe weather, fire etc.).

**The design and specification shall be subject to any due changes without prior notice. The final interpretation right of this event is reserved by Suregreen.**

## Contact Information

If you have any further questions or queries, please get in touch:

Suregreen Limited

[www.sure-green.com](http://www.sure-green.com)

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